May 20, 2014

MEMORANDUM: Lawrence Burkhart, Chief
Licensing Branch 4
Division of New Reactor Licensing
Office of New Reactors

FROM: Brian Hughes, Senior Project Manager ***/RA/***
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: TRIP REPORT – FEBRUARY 10, 2014, GEOLOGIC SITE VISIT IN SUPPORT OF THE WILLIAM STATES LEE III COMBINED LICENSE APPLICATION

This report summarizes activities conducted during the NRC visit to the William States Lee III (Lee) Nuclear Site near Gaffney, South Carolina, on February 10, 2014, to support the geologic, seismic, and geotechnical review of the Duke Energy Carolinas LLC's (Duke) combined license application (COLA) for that site. The attendance list for this visit is provided in Enclosure 1.

The applicant moved the footprints of the original Lee Units 1 and Unit 2, 66-feet to the south. Original Lee Unit 1 was also moved 50 feet to the east to avoid the area of "soft ground" (i.e., a zone of deeply weathered bedrock) at the northwest corner of original Unit 1 as shown in Enclosure 2. The applicant drilled five boreholes inside the relocated Unit 1 footprint and two inside the relocated Unit 2 footprint. The boreholes were located with the express purpose of demonstrating that existing field data derived from previous investigations were representative of geologic characteristics (i.e., rock types and tectonic deformation features) at the relocated plant positions.

The purpose of the site visit was to verify that lithologic units and tectonic deformation features intercepted by the new boreholes in the subsurface at the locations of the relocated footprints were similar to what was observed in boreholes from the previous footprint locations and in the foundation rock units exposed in the existing original excavations for Cherokee, including lithologic units and tectonic deformation structures previously mapped in detail in foundation grade level bedrock of the Cherokee Unit 1 excavation. Cores from the following new boreholes were examined by NRC staff (G. Stirewalt) during the February 10, 2014 site field audit: B-2000 (TD = 126.0 ft) and B-2002 (TD = 225.6 ft) for Unit 1; B-2005 (TD = 225.0 ft) and B-2006 (TD = 101.0 ft) for Unit 2.

CONTACT: Brian Hughes, NRO/DNRL/LB1
(301) 415-6582

Based on detailed examination of the four cores and field observation of the locations of the new boreholes - and with due consideration for information derived from previous boreholes, examination of exposed bedrock that will comprise the foundation grade level units for Lee, and review of the geologic maps of the Cherokee Unit 1 excavation, it is reasonable to conclude that lithologic units and tectonic deformation features similar to those previously described are observed in the cores from the relocated footprints. Furthermore, B-2000 clearly illustrates the applicant has avoided the zone of deeply weathered rock at the northwest corner of original Lee Unit 1 since the core shows that, at 9.7 feet depth, the borehole passes from the tightly-bonded concrete-bedrock interface into only slightly weathered bedrock. NRC geologists will examine the final excavation for Lee Unit 2 when geologic mapping of foundation grade level bedrock is being done. G. Stirewalt has already examined and evaluated archival files presenting the results of geologic mapping of foundation grade level bedrock for Lee Unit 1 (i.e., previous Cherokee Unit 1), which will remain under foundation concrete poured for Cherokee Unit 1 and will not be re-exposed.

Docket Nos.: 52-018 and 52-019

Enclosures:
As stated

cc w/encls: See next page

Based on detailed examination of the four cores and field observation of the locations of the new boreholes - and with due consideration for information derived from previous boreholes, examination of exposed bedrock that will comprise the foundation grade level units for Lee, and review of the geologic maps of the Cherokee Unit 1 excavation - it is reasonable to conclude that lithologic units and tectonic deformation features similar to those previously described are observed in the cores from the relocated footprints. Furthermore, B-2000 clearly illustrates the applicant has avoided the zone of deeply weathered rock at the northwest corner of original Lee Unit 1 since the core shows that, at 9.7 feet depth, the borehole passes from the tightly-bonded concrete-bedrock interface into only slightly weathered bedrock. NRC geologists will examine the final excavation for Lee Unit 2 when geologic mapping of foundation grade level bedrock is being done. G. Stirewalt has already examined and evaluated archival files presenting the results of geologic mapping of foundation grade level bedrock for Lee Unit 1 (i.e., previous Cherokee Unit 1), which will remain under foundation concrete poured for Cherokee Unit 1 and will not be re-exposed.

Docket Nos.: 52-018 and 52-019

Enclosures:
As stated

cc w/encls: See next page

Distribution:

| | | |
|---|---|---|
| PUBLIC | RidsNroDser | RidsRgn2Mail Center |
| RidsNroDnrlLB4 | BHughes | KRoach, OGC |
| RidsOgcMailCenter | DJackson | JSegala |
| RidsAcrsAcnwMailCenter | | |

**ADAMS ACCESSION NO.** ML14126A584 NRO-002

| OFFICE | LA:NRO/DNRL/LB4 | DSER/RGS | PM:DNRL/LB1 |
|---|---|---|---|
| NAME | RButler | GStirewalt | BHughes |
| DATE | 5/13/14 | 5/19/14 | 5/20/14 |

**OFFICIAL RECORD COPY**

COL - Duke Energy - Lee Mailing List (Revised 12/17/2013)

cc:

Mr. Christopher M. Fallon
VP, Nuclear Development
Progress Energy Florida, Inc.
P.O. Box 1006 - ECO9D
Charlotte, NC 28202

Dhiaa M. Jamil
Group Executive and Chief Nuclear Officer
Duke Energy Carolinas, LLC
P.O. Box 1006 - EC03XM
526 South Church St.
Charlotte, NC 28201-1006

Ms. Ruth Thomas
354 Woodland Dr.
Columbus, NC 28722

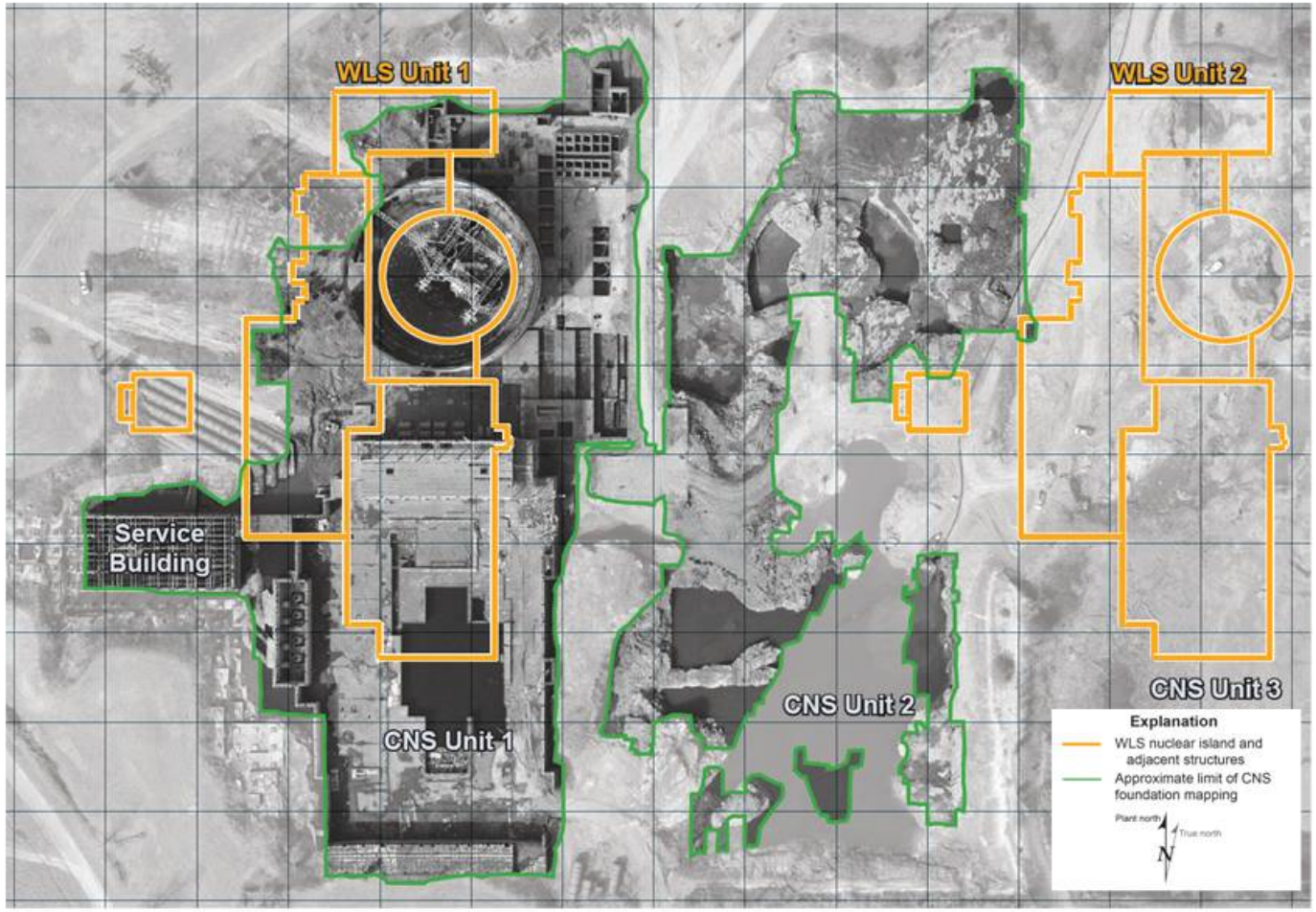
Mr. James Thornton
Duke Energy / NuStart
ECO9D / P.O. Box 1006
Charlotte, NC 28201-1006

COL - Duke Energy - Lee Mailing List

Email

APH@NEI.org (Adrian Heymer)
awc@nei.org (Anne W. Cottingham)
christopher.fallon@duke-energy.com (Christopher M. Fallon)
collinlj@westinghouse.com (Leslie Collins)
CumminWE@Westinghouse.com (Edward W. Cummins)
cwaltman@roe.com (C. Waltman)
david.lewis@pillsburylaw.com (David Lewis)
delongra@westinghouse.com (Rich DeLong)
ed.burns@earthlink.net (Ed Burns)
fbelser@regstaff.sc.gov
james.thornton@duke-energy.com (James Thornton)
jflitter@regstaff.sc.gov
john.oneill@pillsburylaw.com (John O'Neill)
Joseph_Hegner@dom.com (Joseph Hegner)
KSutton@morganlewis.com (Kathryn M. Sutton)
kwaugh@impact-net.org (Kenneth O. Waugh)
lchandler@morganlewis.com (Lawrence J. Chandler)
maria.webb@pillsburylaw.com (Maria Webb)
matias.travieso-diaz@pillsburylaw.com (Matias Travieso-Diaz)
media@nei.org (Scott Peterson)
MSF@nei.org (Marvin Fertel)
murawski@newsobserver.com (John Murawski)
nirsnet@nirs.org (Michael Mariotte)
Nuclaw@mindspring.com (Robert Temple)
patriciaL.campbell@ge.com (Patricia L. Campbell)
Paul@beyondnuclear.org (Paul Gunter)
pbessette@morganlewis.com (Paul Bessette)
RJB@NEI.org (Russell Bell)
russpa@westinghouse.com (Paul Russ)
sabinski@suddenlink.net (Steve A. Bennett)
sfrantz@morganlewis.com (Stephen P. Frantz)
shudson@regstaff.sc.gov (Shannon Hudson)
stephan.moen@ge.com (Stephan Moen)
Tansel.Selekler@nuclear.energy.gov (Tansel Selekler)
TomClements329@cs.com (Tom Clements)
Vanessa.quinn@dhs.gov (Vanessa Quinn)
Wanda.K.Marshall@dom.com (Wanda K. Marshall)
weave1dw@westinghouse.com (Doug Weaver)

# Mapped Areas – Cherokee Final Foundation






Enclosure 2

**Attendance List**

**Site Visit to Observe and Discuss Geotechnical and Seismology Review in Support of the Lee Combined License Application**

**February 10, 2014**

| Name | Organization |
|---|---|
| Gerry Stirewalt | NRC/NRO/DSER/RGS |
| Brian Hughes | NRC/NRO/DNRL/NWE1 |
| Jim Thornton | Duke Energy |
| John McConaghy | Duke Energy |
| Tom Slavonic | Duke Energy* |
| Michael Gray | Duke Energy* |
| Malcom Schaeffer | Duke Energy* |

*Duke Energy Consultant

Enclosure 1